REMARKS

The changes made in the foregoing amendments are shown in the appendix.

This amendment defers to the position in the Official Action that statements in the specification suggest that the term "random" is being used in a sense broader than the word alone would imply. To remove such an inference certain sentences are canceled as follows:

At page 15, lines 12-13 the sentence "Random copolymers lie within these two extremes." is canceled. To preserve continuity, In the next sentence "They" is replaced by "Random copolymers".

At page 14, lines 22-24 the sentences "Random copolymers are composed of domains of their monomer components interspersed in the polymer chain. They range from the extreme of "pure" alternating copolymers to "pure blocky" copolymers." are canceled.

The next sentence is changed by adding "has segments resembling" for "resembles" thereby making clear that the segments are being discussed, not the random copolymer as a whole. Use of the term "segments" is clearly supported by the immediately following text which discusses the formation of different segments of random copolymers and uses the term ""segments" at page 15, line 6.

Accordingly, these amendments are primarily deletions and in one case clarifying and supported by the immediately following text. All of the amendments are supported by the discussion of reactivity ratios beginning on page 14, lines 26 through page 15 line 21, and therefore are not new matter. Entry is respectfully requested.

Claim 30 is amended as called for in the Official Action to avoid suggestion of a range "up to" by stating that the compatibility is "at" rather than "to" the about 1.5 weight percent claimed. That being the only issue with respect to claim 30, allowance is respectfully requested.

Claims 1, 3-9, 11, 12, 14, 21, and 22 are rejected as anticipated by the Lin reference. However, Lin does not use the term "random" with respect to the compatibilizer and in fact discloses a regularly alternating copolymer of olefin component and imide component. Claim 1, the independent claim in this rejection, requires that the compatibilizer be random, and any ambiguity about that term negating regularly alternating copolymers is believed removed by the amendments discussed in the foregoing. Lin is simply not relevant with respect to a truly random copolymer as claimed.

Claims 1, 3-10, 12, and 22 are rejected as anticipated by Crystal. Claim 1, the independent claim in this rejection, requires that the compatibilizer be random. Any ambiguity in this application about the meaning of random is believed removed by the foregoing amendments. The term "random" in this application and in common dictionary definition of "lacking a definite pattern" does not permit of modification with respect to a defined structural order. Hence, the Crystal patent is not pertinent since Crystal refers to a "shaded copolymer," which could not be suggestive of true random.

The term "shaded" to modify "random copolymer" has no more meaning than "straight curve," which is a contradiction and therefore has no meaning at all. In fact, Crystal describes the shaded copolymer as "a random copolymer in which one end of the chain has a high concentration of one component of the copolymer and the other end of the chain has a high concentration of a second component of the copolymer." (col. 4,

l. 49-53). Thus, the Crystal shaded copolymer is simply not random regardless of mention of random in its description.

Regarding the term "consisting of" which replaced "comprising" in the last amendment, that term in the claim refers to the secondary resin for the purpose of negating any implication that the term "random" in the claims means anything but truly random throughout the resin claimed. Contrary to a possible suggestion is the Official Action, however, the term only modifies the claimed secondary resin and does not exclude other compatibilizers in the toner composition as a whole.

Claims 1, 3-10, 12-18, and 20-22 are rejected as obvious over the Crystal reference in view of the Katada reference and further in view of the Sato reference. However, the Crystal reference is now overcome as discussed in the foregoing. Katada and Sato are cited for teaching polyolefins, such as polyethylene and polypropylene waxes, as release agents. Crystal is the only teaching regarding the random copolymer, and such teachings of Katada and Sato could not supply the deficiencies of Crystal as a reference in that Crystal does not teach or suggest a truly random copolymer as claimed.

Claims 11 and 19 are rejected as obvious over Crystal in view of Katada and Sato as applied to claim 1-10, 12-18, and 20-22 and further in view of Mahabadi. As just discussed, Katada and Sato could not supply the deficiencies of Crystal as a reference in that Crystal does not teach or suggest a truly random copolymer as claimed. Mahabadi is cited for teaching olefins as a toner resin component. Similarly, such teaching could not supply the deficiencies as a reference of Crystal.

Accordingly, reconsideration in due course is respectfully requested, followed by allowance of claims 1, 3-22 and 30, all of the pending claims. As indicated in the

foregoing, claim 30 is now understood to be allowable in accordance with the position of the Official Action.

Respectfully submitted,

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Appendix

The changes made in the foregoing amendments to the paragraph at page 12, lines 1 through 16 are as follows.

It is apparent that although a variety of methods have been devised to compatibilize internal release agents and other polymeric additives with the primary resins of toner compositions, a need remains for more effective and/or economical compatibilizers for these internal release agents. It is known in the art that block and graft copolymers are effective compatibilizers of polymer blends. It is also well known that where one phase is a dominant material in a blend, assymetric block compatibilizer copolymers are more effective at compatibilization of the blend than copolymers with equal length blocks. It is also known in the art that block copolymers are one end of a spectrum of copolymers that ranges from alternating to block copolymers. This is to say that for a copolymer made from A and B monomers, one end of the spectrum is a polymer comprised of strictly alternating A-B-A-B units (an "alternating copolymer"), while the other end is a polymer having one end A-A-A in a single block with the other end B-B-B in a single block (a "block copolymer"). [Random copolymers lie within these two extremes. They] Random copolymers are comprised of segments of A and segments of B monomer occurring along the polymer chain, the segments containing a random number of repeat units with each occurrence.

The changes made in the foregoing amendment to the paragraph at page 14, line 22 through page 15, line 21 are as follows.

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[Random copolymers are composed of domains of their monomer components interspersed in the polymer chain. They range from the extreme of "pure" alternating copolymers to "pure blocky" copolymers.] The degree to which a random copolymer has segments resembling [resembles] a "pure block" or a "pure alternating" copolymer depends upon the conditions under which it was polymerized. The relative reaction rates of monomer self addition versus co-monomer addition (also called reactivity ratio rates) also contribute to the "blocky" or "alternating" character of the random copolymer. For example, the two extremes of relative reaction rates (self addition/co-monomer addition) are zero and infinity. The rate is zero if an A moiety in a polymer chain can only add a B monomer to it. The rate is infinity where an A moiety in a polymer chain adds another A monomer unit at a rate that is infinitely fast compared to A/B addition. In the first case, a pure alternating copolymer will result. In the second case, a pure blocky copolymer of A will form, then add B moieties. Between these two extremes, copolymers containing segments of varying lengths of A and B moieties interspersed will result. This concept can be expressed according to the following relationship:

$$r1=kaa/kab \quad r2=kbbkba$$

where r1 (the "monomer 1 reactivity ratio") is the ratio of the rate of addition of an "A" monomer moiety to a growing "A" polymer chain (kaa, self addition rate) divided by the rate of the addition of a "B" monomer moiety to a growing "A" moiety polymer chain (kab, alternating addition rate) and r2 (the "monomer 2 reactivity ratio") is the ratio of the rate of addition of a "B" monomer moiety to a growing "B" polymer chain (kbb, self addition rate) divided by the rate of the addition of an "A" monomer moiety to a growing "B" moiety polymer chain (kba, alternating addition rate). Cast in these terms,

as the rate of "A" moiety self addition becomes fast relative to "B" co-monomer addition (kaa>kab), r1 becomes increasingly large. As the rate of "B" moiety self addition becomes fast relative to "A" co-monomer addition (kbb>kba), r2 becomes increasingly large. For the purposes of producing a co-polymer in one reaction step that is suitable for use as a compatibilizer, it is most desirable to have the situation in which r1 and r2 are both much greater than 1.

The changes made in the foregoing amendment to claim 30 are as follows.

30. (Four Times Amended) In a toner composition comprising about 100 parts of a styrene/acrylic random copolymer base resin and about 3 parts of a polyethylene wax additive, the improvement comprising:

said composition including a high number-average molecular weight random copolymer compatibilizer present in said toner composition <u>at</u> [to] a level that is about 1.5 weight percent relative to the weight of said styrene/acrylic random copolymer, wherein said compatibilizer comprises 81 weight percent ethylene and 19 weight percent n-butyl acrylate monomer units.